

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1-7. (cancelled)

8. (currently amended) An information recording and reproduction apparatus which records and reproduces information by irradiating a laser light onto a recording medium, comprising:

a light source which emits the laser light;

a driving signal generating unit which generates a laser driving signal having a write power level corresponding to performing recording an information onto the recording medium, an erase power level corresponding to performing erasing a recording mark recorded onto the recording medium, or, a read power level corresponding to neither recording nor erasing on the recording medium~~a recording power level corresponding to recording data or a reproduction power level;~~

a high frequency superimposing unit which superimposes a high frequency signal on the laser driving signal; and

a control unit which drives the light source by the laser driving signal on which the high frequency signal is superimposed to perform recording and reproduction,

wherein a level of the high frequency signal at a time of recording is different from the level of the high frequency signal at a time of reproduction,~~and~~

wherein the control unit detects a recording information based on an inputted information,

wherein the high frequency superimposing unit changes the level of the high frequency signal at the timing of a first predefined time period after detecting the recording information,

wherein the control unit transits from a reproduction state to a recording state by changing the power level from the read power level to the erase power level at the timing of a second predefined time period after detecting the recording information, and records the recording information onto the recording medium by changing the power level from the erase power level to the write power level,

wherein the second predefined time period is longer than the first predefined time period,

wherein difference between the second predefined time period and the first predefined time period is equal to or longer than a transient response period of a waveform of the laser light, and

wherein the level of the high frequency signal at the time of the recording is equal to or smaller than $4mW_{pp}$ when the recording medium is a DVD±RW

~~wherein the high frequency superimposing unit changes the level of the high frequency signal at the time of the reproduction to the level of the high frequency signal at the time of recording at a timing a predetermined time period before transition of the control unit from a reproduction state to a recording state.~~

9. (previously presented) The information recording and reproduction apparatus according to claim 8, wherein the level of the high frequency signal at the time of the recording is smaller than the level of the high frequency signal at the time of the reproduction.

10. (currently amended) The information recording and reproduction apparatus according to claim 8, wherein the level of the high frequency signal at the time of the reproduction is equal to or larger than 5mWpp when the recording medium is a DVD_R, ~~and the level of the high frequency signal at the time of the recording is equal to or smaller than 4mWpp when the recording medium is a DVD_R/RW.~~

11. (cancelled)

12. (currently amended) An information recording and reproduction method which records and reproduces information by irradiating a laser light onto a recording medium, comprising:

a driving signal generating process which generates a laser driving signal having ~~a recording power level corresponding to recording data or a reproduction power level~~ a write power level corresponding to performing recording a information onto the recording medium, an erase power level corresponding to performing erasing a recording mark recorded onto the recording medium, or, a read power level corresponding to neither recording nor erasing on the recording medium;

a high frequency superimposing process which superimposes a high frequency signal on the laser driving signal;
and

a control process which drives a light source by the laser driving signal on which the high frequency signal is superimposed to perform recording and reproduction,

wherein a level of the high frequency signal at a time of recording is different from the level of the high frequency signal at a time of reproduction, ~~and~~

wherein the control unit detects a recording information based on an inputted information, wherein the high frequency superimposing unit changes the level of the high frequency signal at the timing of a first predefined time period after detecting the recording information,

wherein the control unit transits from a reproduction state to a recording state by changing the power level from the read power level to the erase power level at the timing of a second predefined time period after detecting the recording information, and records the recording information onto the recording medium by changing the power level from the erase power level to the write power level,

wherein the second predefined time period is longer than the first predefined time period,

wherein difference between the second predefined time period and the first predefined time period is equal to or longer than a transient response period of a waveform of the laser light, and

wherein the level of the high frequency signal at the time of the recording is equal to or smaller than 4mWpp when the recording medium is a DVD±RW

~~wherein the high frequency superimposing process changes the level of the high frequency signal at the time of the reproduction to the level of the high frequency signal at the time of recording at a timing a predetermined time period before transition of the control process from a reproduction state to a recording state.~~

13. (currently amended) A computer program product in a computer-readable medium executed in an information recording and

reproduction apparatus to record and reproduce information by irradiating a laser light onto a recording medium, making the information recording and reproduction apparatus function as:

a driving signal generating unit which generates a laser driving signal having ~~a recording power level corresponding to recording data or a reproduction power level~~ a write power level corresponding to performing recording a information onto the recording medium, an erase power level corresponding to performing erasing a recording mark recorded onto the recording medium, or, a read power level corresponding to neither recording nor erasing on the recording medium;

a high frequency superimposing unit which superimposes a high frequency signal on the laser driving signal; and

a control unit which drives a light source by the laser driving signal on which the high frequency signal is superimposed to perform recording and reproduction,

wherein a level of the high frequency signal at a time of recording is different from the level of the high frequency signal at a time of reproduction, ~~and~~

wherein the control unit detects a recording information based on an inputted information,

wherein the high frequency superimposing unit changes the level of the high frequency signal at the timing of a first predefined time period after detecting the recording information,

wherein the control unit transits from a reproduction state to a recording state by changing the power level from the read power level to the erase power level at the timing of a second predefined time period after detecting the recording information, and records the recording information onto the recording medium by changing the power level from the erase power level to the write power level,

wherein the second predefined time period is longer than the first predefined time period,

wherein difference between the second predefined time period and the first predefined time period is equal to or longer than a transient response period of a waveform of the laser light, and

wherein the level of the high frequency signal at the time of the recording is equal to or smaller than 4mWpp when the recording medium is a DVD±RW

~~wherein the high frequency superimposing unit changes the level of the high frequency signal at the time of the reproduction to the level of the high frequency signal at the time of recording at a timing a predetermined time period before transition of the control unit from a reproduction state to a recording state.~~